

Appln. No. 09/346,361

Amdt dated May 20, 2003

Reply to Office action of April 15, 2003

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

[Claims 1-13 (cancelled)]

1. ~~14~~ (Currently Amended) A digital amplifier, comprising:
a summation circuit for summing an input signal with a feedback signal, and generating a summed output signal;
a noise shaping network with an input coupled to ~~[the output of the]~~ a summation circuit output and generating a noise shaped signal;
a sampling stage with an input connected to ~~[the output of the]~~ a noise shaping network output, and generating a sampled signal, the sampling stage having a predetermined sampling frequency, and generating ~~[an]~~ a sampling stage output signal with a lower transition rate with respect to the sampling frequency by a predetermined multiple;
a feedback loop providing the sampling stage output signal ~~[of the sampling stage]~~ coupled directly to the summation circuit; and
an output stage with inputs connected to ~~[the output of the]~~ a sampling stage output and generating an output signal.

2. ~~15~~ (Previously Amended) The digital amplifier of claim ~~14~~,¹ wherein the output stage includes an H-bridge controller.

3. ~~16~~ (Previously Amended) The digital amplifier of claim ~~14~~,¹ wherein the sampling stage further comprises a logic circuit for suppressing sampling of the input signal for a set number of clock cycles of the sampling frequency clock.

4.17 (Previously Amended) The digital amplifier of claim ~~16~~³³, wherein the logic circuit further includes a transition detector for detecting a transition in the output signal.

5.18 (Currently Amended) The digital amplifier of claim ~~14~~¹, wherein the sampling stage output signal [~~of the sampling stage~~] has a multi-state output, with at least three states.

6.19 (Previously Amended) The digital amplifier of claim ~~14~~¹, wherein the noise shaping network comprises a plurality of integrator stages.

7.20 (Currently Amended) A digital amplifier, comprising:
a summation circuit for summing an input signal with a feedback signal, and generating a summed output signal;
a noise shaping network with an input coupled to [~~the output of the~~] a summation circuit output and generating a noise shaped signal;
a sampling stage with an input connected to [~~the output of the~~] a noise shaping network output, and generating [~~an~~] a sampling stage output signal with a multi-state output, with an least three states;
a feedback loop providing the sampling stage output signal of the sampling stage coupled directly to the summation circuit; and
an output stage with inputs connected to [~~the output of the~~] a sampling stage output and generating an output signal.

8.21 (Currently Amended) The digital amplifier of claim [~~14~~] ~~20~~⁷, wherein the output stage includes a semiconductor H-bridge controller.

9. ~~22~~. (Currently Amended) The digital amplifier of claim [14] ~~20~~,⁷ wherein the sampling circuit generates ~~[an]~~ a sampling stage output signal with a lower transition rate with respect to the sampling frequency by a predetermined multiple.

10. ~~23~~. (Currently Amended) The digital amplifier of claim [14] ~~20~~,⁷ wherein the sampling circuit further comprises a logic circuit for suppressing sampling of the input signal for a set number of clock cycles of the sampling frequency clock.

11. ~~24~~. (Currently Amended) The digital amplifier of claim [17] ~~23~~,¹⁰ wherein the logic circuit further comprises a transition detector for detecting a transition in the output signal.

12. ~~25~~. (Currently Amended) The digital amplifier of claim [14] ~~20~~,⁷ wherein the noise shaping network comprises a plurality of integrator stages.

Claims 26-27 (Cancelled)

13. ~~28~~. (Previously Added) A method of digital amplification, comprising:

summing an input signal with a feedback signal and generating a summed output signal;

noise shaping the summed output signal to generate a noise shaped signal;

sampling the noise shaped signal at a predetermined sampling frequency and generating a sampled output signal with a lower transition rate with respect to the predetermined sampling frequency by a predetermined multiple;

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feeding back the sampled output signal as the feedback signal; and

outputting the sampled output signal as an output signal.

14.29.13 (Previously Added) The method of digital amplification of claim 28, further comprising outputting the sampled output signal through an H-bridge controller.

E'cont. *15.30.13* (Previously Added) The method of digital amplification of claim 28, wherein the sampling includes suppressing sampling of the noise shaped signal for a set number of clock cycles of a sampling frequency clock.

16.31.15 (Previously Added) The method of digital amplification of claim 28, wherein the suppressing sampling includes detecting a transition in the sampled output signal.

17.32.13 (Previously Added) The method of digital amplification of claim 28, wherein the outputting includes outputting a multi-state output signal with at least three states.

18.33.13 (Previously Added) The method of digital amplification of claim 28, wherein the noise shaping includes integrating the summed output signal through a plurality of integrator stages.

19.34. (Previously Added) A method of digital amplification, comprising:

summing an input signal with a feedback signal and generating a summed output signal;

noise shaping the summed output signal and generating a noise shaped signal;

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sampling the noised shaped signal and generating a sampled output signal;

feeding back the sampled output signal as the feedback signal; and

generating a multi-state output signal having at least three states using the sampled output signal.

20.35 *19* (Previously Added) The method of digital amplification of claim *24*, wherein a semiconductor H-bridge controller generates the multi-state output signal.

21.35 *20* (Previously Added) The method of digital amplification of claim *25*, wherein the sampling includes generating a sampled output signal having a lower transition rate with respect to a sampling frequency by a predetermined multiple.

22.35 *21* (Previously Added) The method of digital amplification of claim *26*, wherein the sampling includes suppressing sampling of the noise shaped signal for a set number of clock cycles of a sampling frequency clock.

23.35 *22* (Previously Added) The method of digital amplification of claim *27*, wherein the suppressing sampling includes detecting a transition in the output signal.

24.35 *23* (Previously Added) The method of digital amplification of claim *28*, wherein the noise shaping includes integrating the summed output signal through a plurality of integrator stages.